



Figure 1. Compressor power consumption with varying inlet humidities: processing 400 scfm, 95 deg F to 70 deg F, 60 grains/lb. Evap-rotor is current invention and any invention where the rotor is downstream of the evaporator. Rotor-evap system is any invention where the rotor is upstream of the evaporator. Conventional system is without any desiccant dryer.

Legend:

- 1-Evap rotor system
- 2-Rotor evap system
- 3-Conventional system

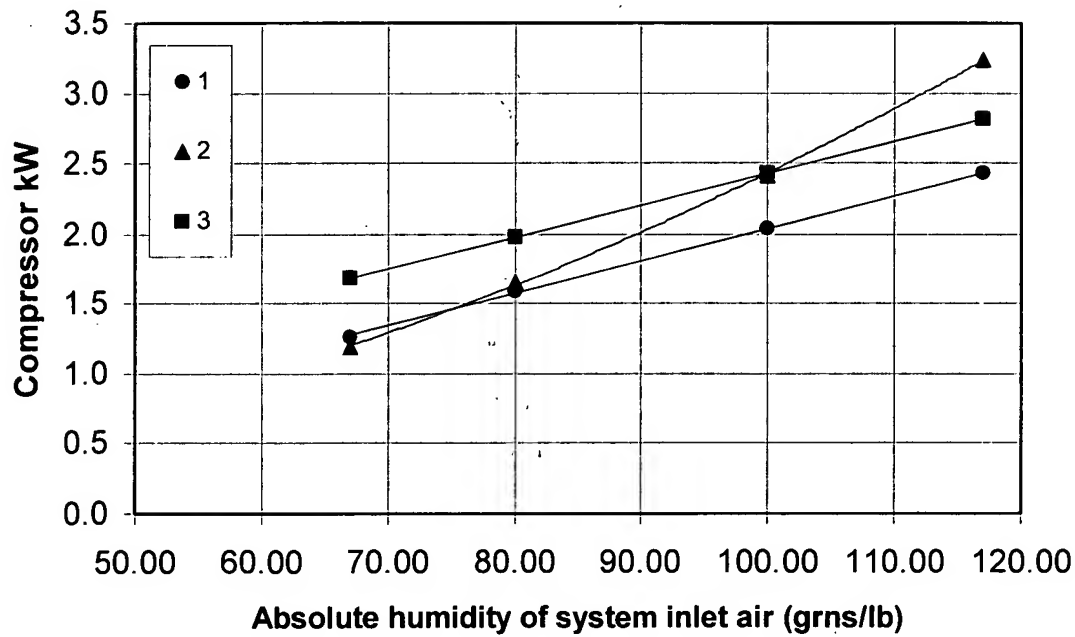


Figure 2. Invention schematic

Legend:

A-Evaporator coil

B-fan

C-rotor housing

D-rotor (10-100 RPH)

E-filter

11-Intake air (from cabin or ambient)

12-After filter and fan, entering evaporator coil

13-Leaving evaporator coil, entering desiccant rotor

14-Leaving evaporator coil (to cabin)

15-Regeneration air inlet

16-Regeneration air outlet

17-Discharge air

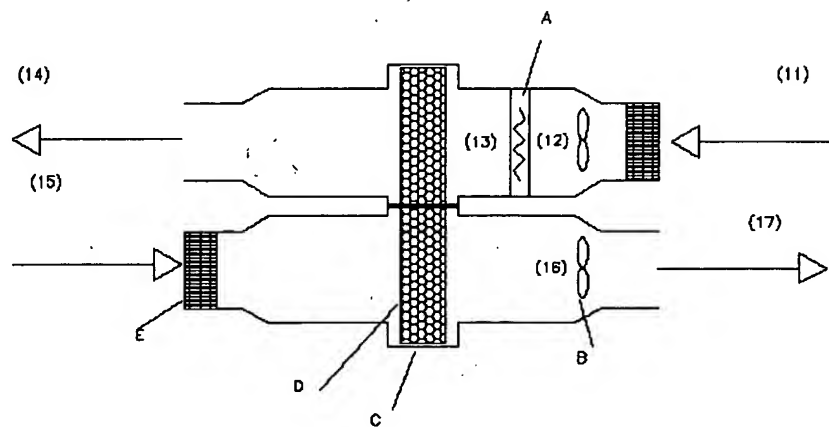


Figure 3. Rotor-evap system psychrometric process

Legend:

A—before fan

B—entering rotor

C—entering evaporator

D—supply to cabin

E—regeneration air

PSYCHROMETRIC CHART

Sea Level

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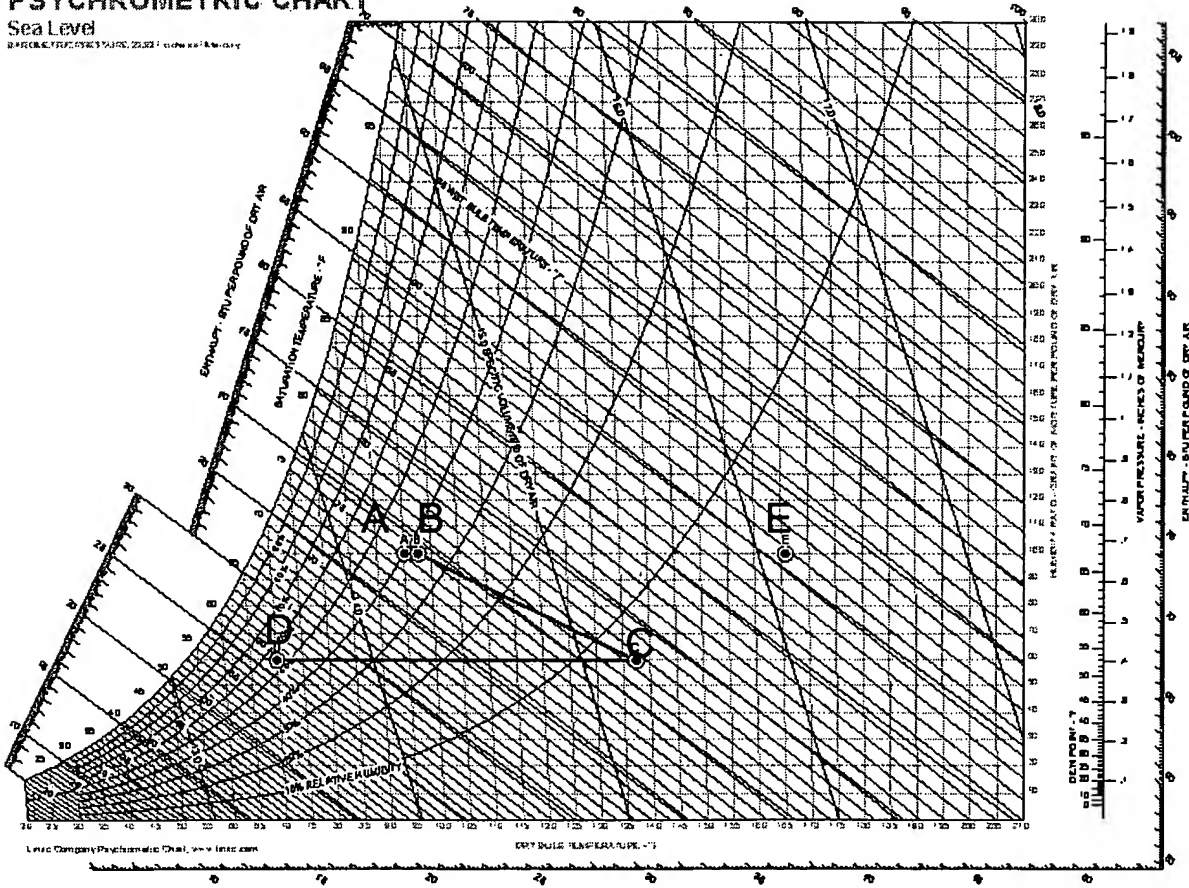


Figure 4. Evap-rotor system psychrometric process

Legend:

A-entering fan

B-entering evaporator

C-entering rotor

D-supply to cabin

E-regeneration air

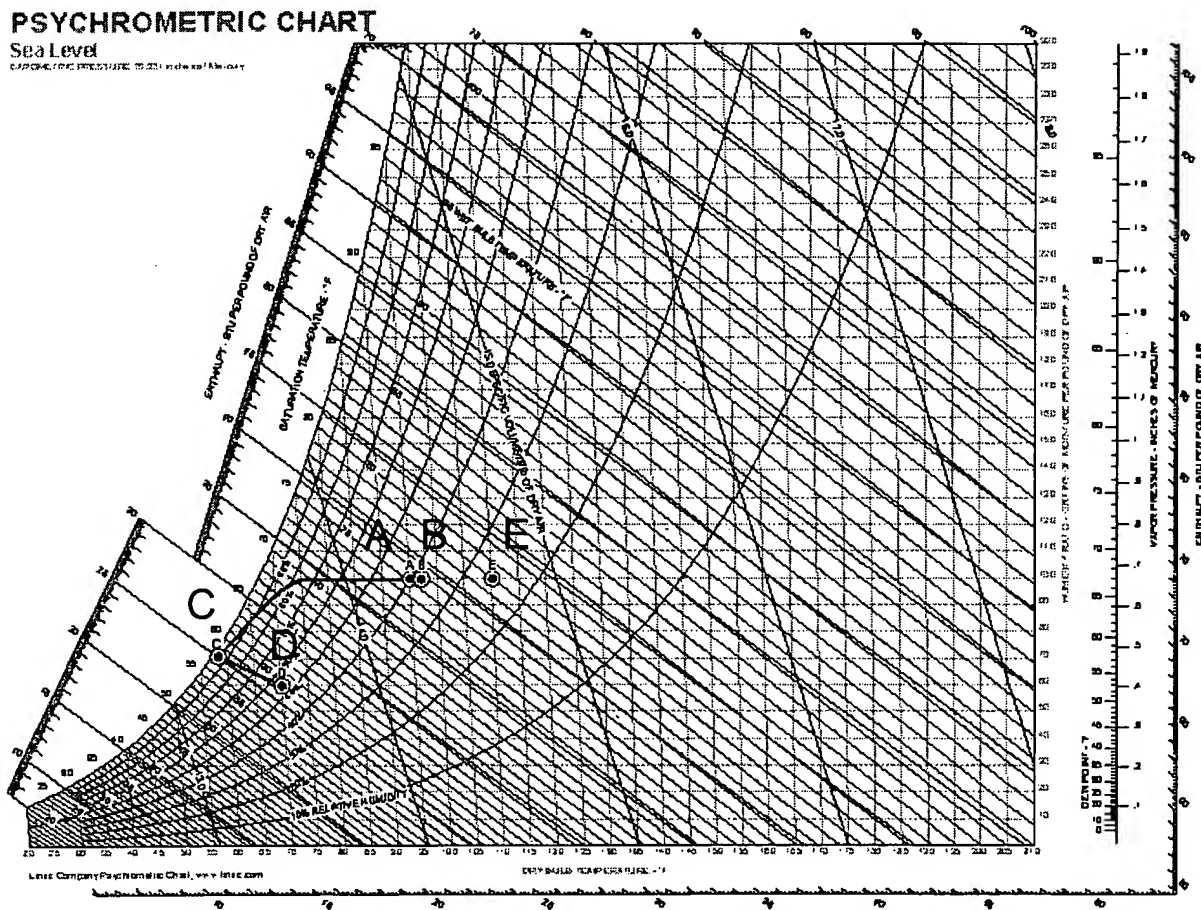


Figure 5. Latent Cooling Characteristics of Desiccant Rotor
350 sfpm, 50/50 split, GrnsProcIn = GrnsRegenIn
(DB = Dry bulb temperature)

Legend:

- 1 - Approx operating point of Rotor-evap is mid process inlet RH with high latent capacity requirements and consequently high regeneration temperature
- 2 - 90 Process Inlet DB/220 Reg DB curve
- 3 - 60 Process Inlet DB/130 Reg DB curve
- 4 - Approx. operating point of Evap-rotor is high RH with moderate latent capacity requirements

